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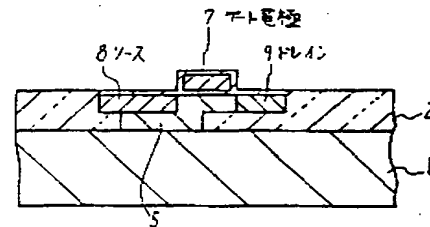
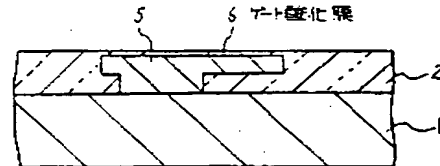
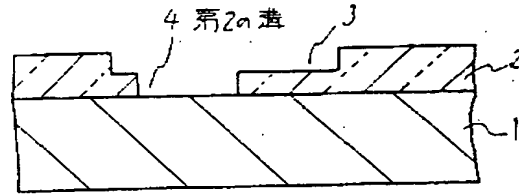
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TITLE : MANUFACTURE OF
SEMICONDUCTOR DEVICE



ABSTRACT : PURPOSE: To reduce a junction area of a drain to a semiconductor substrate and to lower a drain capacitance by a method wherein a second groove reaching the semiconductor substrate is formed inside a first groove, an epitaxial layer is formed inside the groove and is flattened, a gate electrode is formed on its surface and the drain is formed in a region surrounded by an oxide film.

CONSTITUTION: A second groove 4 reaching the surface of a silicon substrate 1 is formed inside a first groove 3. Then, an epitaxial growth operation is executed; the first and second grooves 3, 4 are filled; a P-type epitaxial layer 5 is grown up to the outside of the first groove 3. Then, the P-type epitaxial layer 5 protruding from the first groove 3 is shaved and flattened; after that, a gate oxide film 6 is grown on its surface. Then, a polycrystalline silicon film is formed on the whole surface; after that, it is patterned, and a gate electrode 7 is formed; after that, an oxide film is formed on its surface. During this process, the gate electrode 7 is formed so as to be spread over the first and second grooves in such a way that a channel region is connected to a silicon substrate 1. After that, a source 8 and a drain 9 are formed by making use of the gate electrode 7 as a mask.

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